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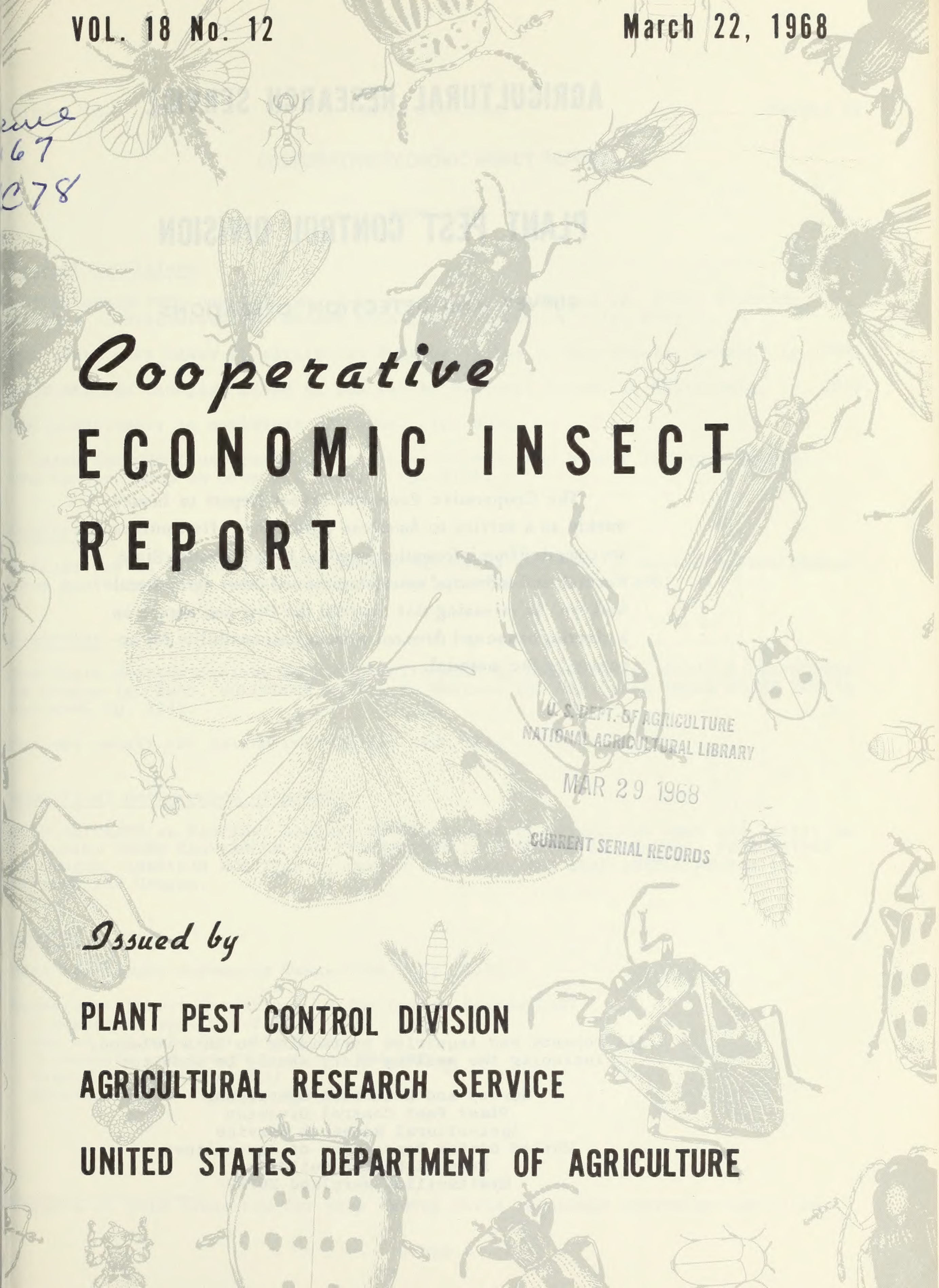

# *Cooperative* ECONOMIC INSECT REPORT

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PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 18 March 22, 1968 Number 12

# COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

### Current Conditions

WINTER GRAIN MITE heavy on wheat in Kay County, Oklahoma (p. 206); stunting alfalfa in Stanislaus and Merced Counties, California (p. 207).

PEA APHID very heavy on alfalfa in Pahrump Valley of Nye County, Nevada. (p. 206).

BARK BEETLES damaging pines in Los Padres National Forest in California. (p. 208).

HOG LOUSE heavy in northwest Arkansas. (p. 209).

A GRASS WEBWORM found for the first time on Maui and Hawaii Islands, Hawaii. Previously found on Oahu and Kauai. (p. 210).

### Prediction

Alfalfa weevil egg survey indicates progressive moderate to severe larval damage from north to south in the southern half of Illinois. (p. 206).

### Detection

New State records include an OLETHREUTID MOTH in Delaware (p. 207), A LEAFHOPPER in Oregon (p. 208), HOLLYHOCK WEEVIL in Montana (p. 212), and PHLOX PLANT BUG in Nebraska (p. 214).

For new county and island records see page 211.

### Some First Occurrences of Season

MOLE CRICKETS in Florida; ALFALFA WEEVIL adults in Oregon and eggs and larvae in Illinois; GREEN CLOVERWORM and TWO-SPOTTED LADY BEETLE in Alabama; PEAR PSYLLA in Oregon; AMERICAN DOG TICK nymphs in Maryland; ELM LEAF BEETLE adults in Arizona and Oregon.

### Special Reports

Beet Leafhopper Survey in Texas-1968. (p. 205).

Summary of Insect Conditions in the United States-1967
  Ornamentals (pp. 212-215).
  Man and Animals (pp. 215-224).
  Households and Structures (pp. 224-226).
  Stored Products (p. 227)
  Beneficial Insects (pp. 228-230).

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Reports in this issue are for week ending March 15 unless otherwise indicated.

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## WEATHER BUREAU'S 30-DAY OUTLOOK

### MID-MARCH TO MID-APRIL

The Weather Bureau's 30-day outlook is for temperatures to average above seasonal normals in the Great Lakes region as well as the southern Plateau region and the south Pacific coast. Below normal averages are indicated for the northwest quarter of the Nation and also for coastal areas of the middle and north Atlantic Coast States. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the south Atlantic Coast States, the Midwest, and the Northwest. Subnormal totals are indicated for the Southwest while near normal precipitation is expected in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $5.00 a year.

## WEATHER OF THE WEEK ENDING MARCH 18

HIGHLIGHTS: Mild temperatures continued over most of the West and the northern Great Plains but the cool trend persisted along the gulf. The heavy snow that fell early in the week from the central Great Plains melted rapidly in the latter half due to warm southerly winds.

PRECIPITATION: Rainy weather continued throughout the week along the Pacific coast with totals of 4 to 5 inches along Washington's coast and exceeding 2 inches as far south as San Francisco. Several inches of snow fell in the mountains above 4,000 feet. Light to moderate precipitation fell mostly early in the week and over the weekend over the Great Basin and the Rocky Mountain States. The southwestern deserts received no rain. Heavy snow fell from Oklahoma to New England in the first part of the week. In some areas, this was the worst storm of the winter. Several counties in northeastern Oklahoma received 12 to 16 inches.

Weather of the week continued on page 211.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

### Beet Leafhopper Survey, Texas - 1968

The beet leafhopper (Circulifer tenellus) survey was begun February 26 and completed March 1, 1968. The survey was conducted in 51 counties in Texas with 96 stops being made. Host plants were present at 85 percent of the stops. The number of beet leafhoppers per 100 square feet was 7.

Significant observations: Unusally wet conditions were noted throughout the survey area. Under these conditions, populations should be held at a low level. Host plants were generally widespread and uniformly distributed. Plant conditions were excellent in all but the extreme northern part of the survey area. Beet leafhoppers were found at the rate of 7 per 100 square feet in 1968 compared with 26 per 100 square feet in 1967. A total of 276 beet leafhoppers was collected in the 4,100 square feet sampled. In order that the survey information be more specific, the following breakdown is presented.

TEXAS - El Paso-Crystal City-Monahans Area. This area produced one-third of the beet leafhoppers found during the survey in 1968. Host plants were in better condition and more abundant. Populations in the immediate Uvalde area increased, but large decreases were noted in the Normandy, Marathon, and Marfa area and in the Toyavale, Balmorhea, and Ft. Stockton area. No sampling was done in the El Paso Valley due to heavy rains.

Odessa-Dumas-Abilene Area. Host plants at 24 of the 34 stops in this area produced 140 beet leafhoppers. Stops with positive results decreased from 14 in 1967 to 10 in 1968. Beet leafhopper in this area increased only slightly over last year's count of 136. Six of the positive stops were located in the western area and the remaining 4 positive stops were in the southeastern section, north of Abilene.

Sonora-Abilene-Monahans Area. Counts decreased from 102 in 1967 to 46 in 1968. Host plants were widespread and in excellent condition in this area. (PPC and cooperating agencies).

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BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Nymphs emerging, 1-10 per 10 sweeps, from southern Merced County south through Kern County; increasing rapidly. Nymphs averaged 4 per 10 sweeps in Big Panoche Canyon, Fresno County; comparable averages found from Big Panoche south through Cantua Creek. Populations developing in large portion of western Kern County; 2-8 per 10 sweeps in many locations near Taft. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Averaged 5-16 per foot of barley in Roswell area, Chaves County. (Mathews). KANSAS - Large decrease observed in Phillips County last 2 months. Currently averages 0-2 per foot of row in one field; numbered 25-50 per foot of row February 12. (Wilde). None found in Lincoln, Ellsworth, Rice, Kingman, Sedgwick, Sumner, Harvey, Marion, and Dickinson Counties. (Brooks). OKLAHOMA - Ranged from less than 5 to 300 per linear foot on southwest area wheat. Probably due to weather of past week; mortality 50 percent in some fields. Scattered high counts in poor, sandy soils. Less than 5 to 20 per foot on Logan and Payne County wheat. Light in Stephens County. (Okla. Coop. Sur.). MISSISSIPPI - Adults and nymphs moderate, 40 per square foot on oats and 30 on rye, in Oktibbeha County. Winged adults in both fields. (Dinkins).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Ranged 3-5 per square foot in Ottawa County wheat fields. Less than 1 larva per square foot infested about 25 percent of fields examined in Lincoln, Ellsworth, Rice, Kingman, Sedgwick, Sumner, Harvey, Marion, and Dickinson Counties. (Simpson).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Medium to heavy on early planted barley at Yuma, Yuma County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Averaged over 500 per 100 sweeps in several alfalfa fields at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Apparently increasing in several alfalfa fields checked in Artesia area, Eddy County. (Campbell).

## SMALL GRAINS

GREEN PEACH APHID (*Myzus persicae*) - NEVADA - Generally light to medium, but heavy in some barley in Moapa Valley, Clark County. (Johnson, Zoller). MISSISSIPPI - Adults and nymphs light, 10 per square foot, on oats and heavy, 50 per square foot, on rye in Oktibbeha County. Winged adults in both fields. (Dinkins).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - ARIZONA - Light on Mohave County barley. (Ariz. Coop. Sur.).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Heavy on wheat in scattered Kay County fields. (Okla. Coop. Sur.).

## TURF, PASTURES, RANGELAND

CHINCH BUG (*Blissus leucopterus*) - KANSAS - Bunch grass samples for spring survey collected in late February from total of 55 counties in 3 eastern and 3 central districts. Total of 162 samples collected. Average number of chinch bugs per square foot by district as follows: Northeast - 0.89 (found only in Riley County); east-central - 15.2 (found in 6 of 14 counties); southeast - 17.2; south-central - 99.0; central - 67; north-central - none found. Highest average counts above 100 per square foot by county: Morris 114 (range 54-173), Harvey 137 (range 0-288), Sedgwick 107 (range 0-240), Dickinson 222 (range 29-320), Marion 212 (range 0-405). (Wilde, Martinez, Redding, Simpson). TEXAS - Moderate to heavy along fence rows and in bunch grass around 1967 corn and grain sorghum fields in Waller County. (Parker, Mar. 15).

A GROUND PEARL (*Margarodes meridionalis*) - NEW MEXICO - Serious on Tiftgreen Bermuda grass lawn at Mesilla Park, Dona Ana County. (Watts).

MOLE CRICKETS (*Scapteriscus* spp.) - FLORIDA - Heavy for first time this season at Gainesville, Alachua County; attracted to mercury vapor lights. (Hetrick).

## FORAGE LEGUMES

PEA APHID (*Acyrthosiphon pisum*) - NEVADA - Very heavy on alfalfa in Pahrump Valley, Nye County; stunting and yellowing plants. Generally light to medium in Moapa Valley, Clark County. (Johnson, Zoller). ARIZONA - Light on Mohave County alfalfa. Decreasing in most areas at Yuma. Ranged 300-600 per 100 sweeps in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Remains light in most alfalfa checked in Chaves and Eddy Counties. (Mathews). OKLAHOMA - Ranged 15-35 per square foot of crown on Tillman County alfalfa. Ranged 3-30 per square foot of crown in Garvin County. Medium on Washita County alfalfa. (Okla. Coop. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - OREGON - Collected 1 adult per sweep in 5-acre alfalfa field five miles east of Corvallis, Linn County, in late February. (Larson). MISSISSIPPI - Eggs averaged 23 per 160 stems, adults 12 per 8 square feet in untreated Pontotoc County alfalfa. (Pitre). ILLINOIS - A few larvae found; except in extreme southern area or on steep south or west slopes, damage will not be visible for 2 or 3 weeks. Egg laying just begun; recent egg survey in east-southeast area shows 35 percent of alfalfa fields have enough eggs for potentially severe larval damage. Damage will be severe in almost all alfalfa south of a line from Paris to Alton. Moderate to heavy damage will occur in most alfalfa north to a line from Watseka to Springfield to Hardin. (Ins. Sur. Bull.).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Ranged 340-620 per 100 sweeps at Yuma, Yuma County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - ALABAMA - First light larval infestation of of season lightly ragged crimson and burr clovers throughout central and south area. (McQueen).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ALABAMA - Adults flying statewide as daytime temperatures reached normal conditions following 6 weeks of 10-14° below normal. (McQueen).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Nymphs increasing on alfalfa at Yuma. Range 330-590 per 100 sweeps in Yuma County. (Ariz. Coop. Sur.).

THRIPS - NEW MEXICO - Numbers on alfalfa in Artesia area, Eddy County, at about same level as this time last year. (Mathews).

WINTER GRAIN MITE (*Penthaleus major*) - CALIFORNIA - Medium, stunting alfalfa at Modesto, Stanislaus County, and in Merced County. (Burton).

## CUCURBITS

MELON APHID (*Aphis gossypii*) - ARIZONA - Light, scattered on newly planted melons at Yuma, Yuma County. (Ariz. Coop. Sur.).

## GENERAL VEGETABLES

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - CALIFORNIA - Caused much damage to spinach in Yolo area, Yolo County. (Burton).

## DECIDUOUS FRUITS AND NUTS

AN OLETHREUTID MOTH (*Eumarozia malachitana*) - DELAWARE - Adult collected in blacklight trap by J. Franklin on August 25, 1966, at Dover, Kent County. Det. by D. R. Davis. This is a new State record. (Burbutis).

PEAR PSYLLA (*Psylla pyricola*) - OREGON - Adults active during mid-February and early March in Medord, Jackson County, and the Willamette Valley. Dormant sprays applied to pear in Jackson and Hood River Counties. (Every).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - IOWA - Heavy in Pottawattamie County apple orchard. (Mast).

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) - CALIFORNIA - Treatment of deciduous fruit trees well underway in Fresno County. (Cal. Coop. Rpt.).

## OTHER TROP. & SUBTROP. FRUITS

PAPAYA FRUIT FLY (*Toxotrypana curvicauda*) - FLORIDA - Larvae collected in papaya at Sebring, Highlands County, March 4. (Morris).

## ORNAMENTALS

APHIDS - ARIZONA - *Macrosiphoniella sanborni* damaged chrysanthemums in several locations at Yuma, Yuma County. *Aphis spiraecola* building up in marigold plantings at Tucson, Pima County. *Cinara tujafilina* moderate on mature junipers at Tucson. (Ariz. Coop. Sur.). ALABAMA - *A. spiraecola* continues to increase; heavily infested some isolated plants and groups of plantings in home and commercial lawns. Migration of alates to other plantings most noticeable when temperatures reach 65° and above. Larvae of syrphid flies and adults of two-spotted lady beetle feeding on aphids. (McQueen).

A PIT SCALE (Cerococcus deklei) - FLORIDA - Completely defoliated some hibiscus at Miami, Dade County. (Porter).

WHITEFLIES - NEW MEXICO - Very heavy on old poinsettias and coleus in greenhouse at Albuquerque, Bernalillo County. Difficult to control. (Heninger).

A TORTRICID MOTH (Cacaecimorpha pronubana) - OREGON - Infested leaves of Viburnum davidii, Skimmia japonica, and dwarf rhododendron in the Portland area, Multnomah County. Previously found on ivy, Portugal-laurel, and ponderosa pine needles. Det. by R. W. Hodges. (Collier).

## FOREST AND SHADE TREES

BARK BEETLES - CALIFORNIA - Dendroctonus brevicomis infestation starting in Plaskett Ridge area of Monterey District in Los Padres National Forest, San Luis Obispo County; killed 50 ponderosa pines in 100-acre stand. (Campbell, USFS). Ips sp. damaged over 700 knobcone pines in 250-acre stand in Gay Mountain and Black Butte of Los Padres National Forest. (Whited, USFS).

PALES WEEVIL (Hylobius pales) - MARYLAND - Adults on isolated loblolly pine seedings on planting of several acres at Pocomoke State Forest, Worcester County, June 1967. This is a new county record. (U. Md., Ent. Dept.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Infested white fir in forests in Mt. Shasta area, Siskiyou County, and in Fort Bragg, Mendocino County. (Woodfork, Druecker).

ELM LEAF BEETLE (Pyrrhalta luteola) - ARIZONA - First adults of season on Chinese elms at Tucson, Pima County. (Ariz. Coop. Sur.). OREGON - Numerous adults active and entering homes in Portland area, Multnomah County. (Nicolaison).

A LEAFHOPPER (Idiocerus decimusquartus) - OREGON - Collected from Populus alba bulleana at Portland, Multnomah County, August 1967 and Corvallis, Benton County, June 1961. Det. by P. Oman. This is new State record. (Gray, Swenson).

AN APHID (Pterocomma bicolor) - NEVADA - Light to medium on poplar in Moapa Valley, Clark County. (Johnson).

A TENT CATERPILLAR (Malacosoma incurvum discoloratum) - NEVADA - Early instars heavy, damage light on poplars in Moapa Valley, Clark County. Damage will increase as larvae near full growth. (Johnson, Zoller).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S., March 6-10, 1968. Total of 148 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 4, Territorio sur de Baja California 40, Sonora 41, Chihuahua 10, Coahuila 9, Nuevo Leon 2, Tamaulipas 42. Total of 22 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 168,000; Mexico 109,800,000. (Anim. Health Div.).

A CATTLE GRUB (Hypoderma sp.) - IOWA - Averaged 12 per cattle hide at locker plant at Adair on 7 hides from 7 farms. Minimum of 7 per back on 5 hides at locker plant at Knoxville; grubs common in animals for slaughter past 2 weeks. (Iowa Ins. Sur.).

CATTLE LICE - ARKANSAS - Linognathus vituli principal species on cattle in northwest. Infestations uneven and heavy on some cattle. (Simco). OKLAHOMA - L. vituli and Haematopinus eurysternus heavy on cattle in Payne and Mayes Counties; medium in Hughes and Tillman Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - ARKANSAS - Heavy on many farms in northwest. Research treatments applied to bedding. (Simco).

HARD-BACKED TICKS - MARYLAND - First Dermacentor variabilis nymphs of season found March 11 on property at Laurel, Howard County. (U. Md., Ent. Dept.). OKLAHOMA - Amblyomma americanum starting to increase in Cherokee County. Few Ixodes scapularis noted in same county. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Infestations continue extremely variable between birds, between cages, and between sections of poultry houses. Lighter on birds on floor of houses than on birds in cages. (Simco). Found in all 4 corners of State and in central area; known to occur in only 8 counties. (Boyer).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - INDIANA - Male collected January 24, 1968, from Mount Vernon, Posey County. Det. by T. A. Parker. This is a new county record. (Huber).

## HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OREGON - R. tibialis infested building in The Dalles, Wasco County, late in January. Det. by D. R. Smith. (Every). NEVADA - Numerous R. hesperus adults emerging in boiler room of courthouse at Minden, Douglas County. (Munk). MARYLAND - Alates of R. flavipes swarmed inside several homes in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

## BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - ARIZONA - In better condition past month than at same period last year. Better apiaries in third brood cycle as of March 10. Shortage of bees for citrus pollination due to depletion last year and movement of many hives to desert areas for nectar. (Coe).

TWO-SPOTTED LADY BEETLE (Adalia bipunctata) - ALABAMA - Adults emerged from hibernation in Lee County; fed on spirea aphid. (McQueen).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Egg deposition surveys conducted in grassland areas in 8 western and southwestern counties. No heavy concentrations found. Forty stops averaged 0.35 viable egg pod per square foot of sod. Most egg pods sound with very little parasite and predator damage. (Okla. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Spraying in San Diego program area about 20 percent complete; 500+ residential blocks (nearly 10,000 properties) treated. Inspection of 1,000 additional residential locations failed to detect further spread. (Cal. Coop. Rpt.).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Third year of eradication program at San Jose, Santa Clara County, concluded. Total of 340 street and yard hosts sprayed. Surviving scales found on only one previously infested tree prior to treatment. Total of 1,835 host plants inspected this season completed 75 percent of planned four-year grid inspection program extending 3 miles around treatment zones. (Cal. Coop. Rpt.).

## HAWAII INSECT REPORT

*Turf, Pasture, Rangeland* - Larval and adult numbers and damage of a BILLBUG (*Sphenophorus venatus vestitus*) ranged light to moderate on Kikuyu grass pastures in Kipahulu, Maui, at 400-foot elevation. (Miyahira). A GRASS WEBWORM (*Herpetogramma licarsisalis*) found for first time on Maui and Hawaii Islands March 6 and March 11, respectively. Larval numbers and damage moderate to heavy on Kikuyu grass pastures and Bermuda grass at Kipahulu, Maui. Adults in light traps and adults light on Bermuda grass and Hilo grass at Hilo, Hawaii Island. Adults heavy in light traps at Ewa, Waipahu, Kailua, and Manoa area of Honolulu, Oahu. Larvae heavy on Bermuda grass and *Lippia canescens* lawns at Mokapu Peninsula at Kaneohe, Oahu; damage to *L. canescens* severe. Adults increasing slightly on ornamentals and walls of buildings in scattered areas on Kauai; damage to lawns trace to light. (Yoshioka et al.). Nymphs and adults of a MIRID BUG (*Oronomiris hawaiiensis*) medium, 25 per 5 sweeps, on Bermuda grass along road shoulders at Makaha, Oahu. (Nakao). RHODES-GRASS SCALE (*Antonina graminis*) nymphs and adults medium, 7 per inch of stem, on Para grass in scattered areas of Waimanalo, Oahu. (Funasaki).

*General Vegetables* - All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) heavy on 5 acres of eggplant and tomato at Nanakuli and Waianae, Oahu; medium in 11 acres of snap beans at Waimanalo and Waianae. Adults medium in 7 acres of tomato at Kona, Hawaii Island. (Nakao et al.). DIAMONDBACK MOTH (*Plutella xylostella*) larvae heavy, damage moderate, in one acre of Chinese cabbage at Pulehu, Maui, at 1,600-foot elevation. (Miyahira). CHINESE ROSE BEETLE (*Adoretus sinicus*) defoliated 25 percent (light) of 11 acres of snap beans at Waimanalo and Waianae, Oahu. (Funasaki).

*Fruits* - Nymphs and adults of a MEALYBUG (*Pseudococcus obscurus*) very light in 150 acres of passion-fruit at Kahului, Maui; larvae of a LADY BEETLE (*Cryptolaemus montrouzieri*) moderate. (Miyahira).

*Ornamentals* - HAWAIIAN THRIPS (*Thrips hawaiiensis*) nymphs and adults light to medium, 10-25 per blossom, on early blooming gardenia at Hilo, Hawaii Island and Kaneohe, Oahu. (Funasaki). All stages of a PLATASPID BUG (*Coptosoma xanthogramma*) heavy on jade vine and remain severe on *Mucuna* sp. at Hilo, Hawaii Island. (Yoshioka).

*Beneficial Insects* - Adults of a CHALCID WASP (*Brachymeria obscurata*) medium on Kikuyu grass pastures at Kipahulu, Maui; probably associated with *H. licarsisalis*. (Miyahira).

## CORRECTIONS

CEIR 18(11):184 - Change A CRYPTOCHAETID FLY (Cryptochaetum iceryae) to A CRYPTOCHETID FLY (Cryptochetum iceryae).

CEIR 18(11):185 - EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) - IOWA - Delete note. Determination doubtful.

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/11, BL - Black cutworm (*Agrotis ipsilon*) 3, granulate cutworm (*Feltia subterranea*) 6, variegated cutworm (*Peridroma saucia*) 1. TEXAS - Waco - 3/9-15, BL - Armyworm (*Pseudaletia unipuncta*) 18, black cutworm 3, granulate cutworm 9, variegated cutworm 43, yellow-striped armyworm (*Prodenia ornithogalli*) 21.

## INSECT DETECTION

### New State Records

An OLETHREUTID MOTH (*Eumarozia malachitana*) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, by J. Franklin, August 25, 1966. Det. by D. R. Davis. (p. 207).

A LEAFHOPPER (*Idiocerus decimusquartus*) - OREGON - Collected from *Populus alba bulleana* at Corvallis, Benton County, June 1961 and Portland, Multnomah County, August 1967. Det. by P. Oman. (p. 208).

HOLLYHOCK WEEVIL (*Apion longirostre*) - MONTANA - Collected at Billings, Yellowstone County. (p. 214).

PHLOX PLANT BUG (*Lopidea davisi*) - NEBRASKA - Collected from perennial phlox in Lancaster County. (p. 214).

### New County and Island Records

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) - INDIANA - Posey County. (p. 209).

A GRASS WEBWORM (*Herpetogramma licarsisalis*) - HAWAII - Maui and Hawaii Islands. (p. 210).

FACE FLY (*Musca autumnalis*) - NORTH DAKOTA - Sargent County. (P. 218).

A EULOPHID WASP (*Aphelinus semiflavus*) - NEBRASKA - Burt and Saunders Counties. (p. 230).

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Weather of the week continued from page 204.

In central Indiana, the snow mixed with freezing rain on the 12th caused roads to be slippery or clogged. Some rural schools closed on Wednesday. Substantial rains south of the snow belt brought much needed moisture to the South. A weekend storm dumped moderate to heavy rains along the Atlantic coast and scattered sprinkles west of the Appalachians. Weekly totals ranged from 2 to 4 inches from Mississippi and Alabama to Virginia and southern New England. Only light precipitation fell over the northern States from the eastern slopes of the Rockies to the Great Lakes. However, as the week ended, snowstorms were occurring in Montana and the Dakotas and thunderstorms developed over eastern Nebraska, western Iowa, southeastern South Dakota, and southwestern Minnesota.

TEMPERATURE: Most of the West was slightly cooler than last week but still remained warmer than normal. Temperatures rose steadily over the northern Great Plains, especially during the latter half of the week, reaching the 70's in much of the Dakotas. Fargo registered 73° on Sunday, 1° warmer than New Orleans. Most of the area from Montana to the Great Lakes and southward to Nebraska averaged 7° to 10° above normal. The warm southerly winds melted the snow quickly. In some northeastern localities, the rapidly melting snow, ice jams, and heavy rains created a flood situation. Much of the Southeast was mild at the beginning of the week, cooled at midweek, and turned warmer during the latter half, averaging a few degrees cooler than normal. Along the gulf coast, this was the 5th or 6th week with cooler-than-normal temperatures. (Summary supplied by Environmental Data Service, ESSA.)

## SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1967

(continued from page 202)

### ORNAMENTALS

### Highlights:

FULLER ROSE WEEVIL was a serious pest of ornamentals in southeastern Virginia in the late summer and early fall and caused widespread local damage in California. TORTRICID MOTHS damaged ornamentals in Oregon and Nevada. A NOCTUID MOTH complex was severe on chrysanthemums at Bradenton during the fall and BEET ARMYWORM was very severe on gladioli in Manatee and Collier Counties, Florida. Various SCALES and APHIDS caused damage to numerous ornamentals in most of the States reporting. CITRUS WHITEFLY remained a serious pest of certain ornamentals in Florida. AZALEA LACE BUG necessitated control efforts on thousands of azaleas at nurseries in Hillsborough County, Florida. Unspecified MITES were generally very prevalent and caused much damage to ornamentals while BROWN GARDEN SNAIL was unusually heavy and damaging in California. SLUGS presented problems on various ornamentals in Nevada, Pennsylvania, and Maine.

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BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) destroyed an ornamental taxus planting in Westerly, RHODE ISLAND, but was controlled in the better nurseries. Females began to emerge in northeastern OHIO in the second week of April and fed on taxus roots from the third week of April through the first half of June. Pupation began in the last half of May and was almost complete by the first week of June. The first new adults of the season occurred in the northern section in mid-June. Black vine weevil was one of the most important pests of nursery stock in 1966 and damaged taxus in 1967. Black vine weevil and a WEEVIL (*B. meridionalis*) damaged various hosts in Washoe County and STRAWBERRY ROOT WEEVIL (*B. ovatus*) damaged several ornamentals in Douglas County, NEVADA.

A WEEVIL (*Scyphophorus acupunctatus*) damaged agave and dooryard cactus at Tucson in Pima County, ARIZONA, from early August through mid-October. HOLLYHOCK WEEVIL (*Apion longirostre*) ranged light to moderate in UTAH and was collected at Billings, MONTANA. According to available literature, this is a new State record. In WASHINGTON hollyhock weevil was collected at Soap Lake, Grant County, and a WEEVIL (*Cosmobaris americana*) was collected from *Kochia americana* on August 7 in Yakima County for new State records. VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) increased in importance in CALIFORNIA after several years of low intensity. FULLER ROSE WEEVIL (*Pantomorus cervinus*) increased and caused widespread local damage in the State. Fuller rose weevil was a serious pest of many ornamentals in southeastern VIRGINIA during late summer and early fall.

ASIATIC GARDEN BEETLE (*Maladera castanea*) was much less conspicuous in 1967 than in the past several years in RHODE ISLAND. ROSE CHAFER (*Macrodactylus subspinosus*) adults were first seen on June 22 and apparently disappeared sooner than usual in Rhode Island. Populations were the heaviest in the northern area. Rose chafer heavily damaged rose and iris in an area of Sussex County, DELAWARE. A JUNE BEETLE (*Cotinis texana*) was found on a rosebush in Clark County, NEVADA, for a new State record in 1967. SCARABS (*Hoplia* spp.) caused much damage to roses in northern CALIFORNIA. A CUCUMBER BEETLE (*Diabrotica* sp.) was more prevalent in home gardens in California than in former years.

A TORTRICID MOTH (*Cacaecimorpha pronubana*) severely damaged Portugal-laurel leaves in restricted areas in Portland, Multnomah County, OREGON, during April. Another TORTRICID MOTH (*Argyrotaenia cockerellana*) was heavy and damaged juniper in June for the third year in Washoe County, NEVADA, while damage by *Choristoneura zapulata* ranged medium to heavy on shrubs in the southern part of the county during late May and June. The unusual abundance of FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) on other crops produced infestations on roses and other yard ornamentals in CALIFORNIA. Larvae of a NOCTUID MOTH COMPLEX in FLORIDA were severe on chrysanthemums during the fall at Bradenton, Manatee County. Populations of

FALL ARMYWORM (*Spodoptera frugiperda*) and CORN EARWORM (*Heliothis zea*) were taken mostly on the buds while CABBAGE LOOPER (*Trichoplusia ni*) was taken mainly at the plant bases. BEET ARMYWORM (*S. exigua*) and an unspecified CLIMBING CUTWORM were also involved. Beet armyworm was very severe on cut-over gladioli and required 2-3 sprays per week during the spring and early fall in Florida. About 2,000 acres were involved in the Bradenton area, Manatee County, and in Naples, Collier County. This species was also a problem at Vero Beach, Stuart, and Ft. Myers. Controls were not successful at Ft. Myers in late October. Sprays could not reach the larvae under the leaf sheaths at the plant bases. In CALIFORNIA beet armyworm damaged some cut flowers, bedding plants, and a few ornamentals while CUTWORMS were very serious in early 1967 on flowers and bedding plants.

A PLUME MOTH (*Platyptilia pica*) caused heavy damage to commercial and yard geraniums and AZALEA LEAF MINER (*Gracillaria azaleella*) was severe on azaleas in scattered areas of CALIFORNIA. A WALSHIID MOTH (*Periploca nigra*) caused much less local damage to prostrate juniper than in past years while RED-HUMPED CATERPILLAR (*Schizura concinna*) infested many ornamentals in northern California. A GELECHIID MOTH (*Cremona cotoneastri*) caused severe damage to cotoneaster at Jamestown, NORTH DAKOTA, and BAGWORM (*Thyridopteryx ephemeraeformis*) ranged moderate to heavy and damaged evergreens from early May until late July in most areas of OKLAHOMA. Bagworm also damaged evergreens in several areas of MARYLAND, but damage was not as serious as in 1966. Bagworm was again the most destructive pest to coniferous shrubs throughout ALABAMA. EUROPEAN CORN BORER (*Ostrinia nubilalis*) caused moderate damage to "cloth-house" chrysanthemums in the Lycoming and Columbia County areas, PENNSYLVANIA, during late August.

Unspecified SCALES were very prevalent in CALIFORNIA in 1967, and as a group, were 1 of the 3 most prevalent and injurious pests in NEVADA. Infestations were heavy on various ornamentals throughout the State. BLACK SCALE (*Saissetia oleae*) was probably more abundant in 1967 than in past years in California and FLETCHER SCALE (*Lecanium fletcheri*) was apparently under control in nurseries in RHODE ISLAND. Hatching was observed in West Greenwich on July 27. SOFT SCALES (*Ceroplastes* spp.) apparently increased on holly in Fairfax County, VIRGINIA, and numbers were heavy on holly in the Richmond and Norfolk areas. A PIT SCALE (*Cerococcus deklei*) caused a problem on hibiscus in Dade and Broward Counties, FLORIDA, and was also taken occasionally on gardenia. EUONYMUS SCALE (*Unaspis euonymi*) was normally abundant in RHODE ISLAND and was heavy on euonymus in various areas of DELAWARE. Pachysandra was occasionally infested. Crawlers were observed in the last week of May. Euonymus scale was the most widespread and important scale infesting ornamentals in MARYLAND and was heavy in many areas of OKLAHOMA from early March to mid-November. This species was a serious pest of euonymus in the Albuquerque area of Bernalillo County, NEW MEXICO, being especially serious on *Euonymus japonica* varieties. Satisfactory controls were very difficult to obtain.

FERN SCALE (*Pinnaspis aspidistrae*) heavily infested liriope in most nurseries throughout VIRGINIA. In FLORIDA an ARMORED SCALE (*Pseudaonidia clavigera*) was serious and difficult to control on camellias in the Tampa area where several thousand nursery plants were quarantined until the infestations could be eliminated. Another ARMORED SCALE (*Aonidiella taxus*) severely damaged leaves of several thousand podocarpus plants, mainly in southeastern Florida. This species was collected for the first time in Osceola County. WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was abundant on many ornamentals and shade trees such as allamanda, goldenrain tree, privet, and chinaberry in the State. Another ARMORED SCALE (*Phenacaspis cockerelli*) was common in Florida on many ornamentals including palms, banana shrub, bird-of-paradise, and magnolia. A parasitic wasp commonly parasitized this species in the Gainesville area. TEA SCALE (*Fiorinia theae*) remained a serious pest of camellia and Burford holly in Florida and was the most destructive and widespread scale on these hosts in ALABAMA. CACTUS SCALE (*Diaspis echinocacti*) heavily infested cactus in Yuma and Maricopa Counties, ARIZONA, in early April. JUNIPER SCALE (*D. carueli*) caused severe damage to juniper and arborvitae shrubs in Whitman County, WASHINGTON.

Unspecified APHIDS were one of the greatest insect problems of 1967 affecting trees, shrubs, flowers, and weeds in MONTANA. Aphids generally started late in CALIFORNIA, were unusually abundant thereafter, and remained until cold weather in the fall. Aphids were 1 of the 3 most prevalent and injurious pests on various ornamentals throughout NEVADA. Aphids were commonly abundant on cultivated roses throughout UTAH during the spring and commonly curled hawthorn foliage in Cache, Box Elder, Weber, Davis, Salt Lake, and Utah Counties. SNOWBALL APHID (Neoceruraphis viburnicola) generally curled snowball bush foliage throughout Utah as usual. SPIREA APHID (Aphis spiraecola) was extremely numerous on the apical growth of spirea at Moab, Grand County; Green River, Emery County; Payson and Provo, Utah County; and Logan and Smithfield, Cache County. This species was a problem on viburnum and other ornamentals in FLORIDA.

OLEANDER APHID (Aphis nerii) damaged new terminal growth of oleander in late March in Yuma, Pinal, and Maricopa Counties, ARIZONA. CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) was heavy on ornamentals and chrysanthemums from February through mid-March in Maricopa and Yuma Counties, Arizona, and ROSE APHID (Macrosiphum rosae) was very heavy on roses in the same counties in April. Controls were applied. GREEN PEACH APHID (Myzus persicae) was also heavy on ornamentals in mid-February in Maricopa County. AN APHID (Cinara tujafilina) was a problem on arborvitae in the spring and fall throughout most of NEW MEXICO. This aphid damaged arborvitae in many areas of OKLAHOMA from January to early May. Fall activity began in mid-November in the north-central area. Other APHIDS were serious spring pests on chrysanthemum, rose, spirea, and viburnum in all areas of MARYLAND.

CITRUS WHITEFLY (Dialeurodes citri) remained a serious pest of poorly treated gardenia, privet, ligustrum, dooryard peach, and persimmon plants in FLORIDA. WHITEFLIES generally showed a marked increase in CALIFORNIA. MEALYBUGS were especially damaging to a wide range of ornamentals with infestations widespread and locally heavy in California. CITROPHILUS MEALYBUG (Pseudococcus fragilis) heavily infested hibiscus in Yuma County and infested zinnia, vine, and hibiscus plants in Pinal County in mid-September in ARIZONA. ROSE LEAFHOPPER (Edwardsiana rosae) often caused severe discoloration to rose foliage in UTAH. A SPITTLEBUG (Clastoptera juniperina) was economic during late June and July on ornamental juniper in Washoe County, NEVADA, and ranged light to medium on native juniper during July and August in Nye County.

LACE BUGS were above normal on azalea, rhododendron, and pyracantha in all areas of MARYLAND and were very numerous and damaging on hollyhocks in Richfield, Sevier County, UTAH. AZALEA LACE BUG (Stephanitis pyrioides) necessitated controls on thousands of azalea plants at nurseries in the Hillsborough County area of FLORIDA and caused damage in Polk County and in the usual northeast locations. Adults of a LACE BUG (Dictyonota fuliginosa) were swept from grass at Seattle, King County, in August 1964 and collected from Scotch-broom in Pierce County, WASHINGTON, in July 1965. These collections were reported as a new U.S. record in 1967. PHLOX PLANT BUG (Lopidea davisi) damaged perennial phlox in Lancaster County, NEBRASKA, for a new State record. FOUR-LINED PLANT BUG (Poecilocapsus lineatus) was very common and damaging to flower foliage in RHODE ISLAND.

CHRYSANTHEMUM GALL MIDGE (Diarthronomyia chrysanthemi) damaged chrysanthemums in a few CALIFORNIA areas but was not as severe as in 1966. PEA LEAF MINER (Liriomyza bryoniae) caused local damage to cut flowers and bedding plants and LEAF MINER FLIES occurred late in the season in California. A new species of Phytomyza in the ilicicola complex damaged holly in San Diego County.

WALKINGSTICK (Diapheromera femorata) was collected for the first time in several years in RHODE ISLAND. EUROPEAN EARWIG (Forficula auricularia) adults and nymphs were heavy for the first time at Saginaw, Saginaw County, MICHIGAN, during mid-July and were very abundant, damaging, and more widespread in CALIFORNIA. THRIPS in general were not as abundant as in 1966 in California. Monilothrips kempi caused severe damage to fern in Sonoma County. In UTAH, ROSE-SLUG (Endelomyia aethiops) caused leaf damage to several home rose gardens from Logan, Cache County, to Provo, Utah County. AN ANT (*Camponotus pylartes fraxinicola*) was found for the first time in FLORIDA in 1967. This species was found in the thorns of bullhorn acacia (*Acacia cornigera*) nursery plants at Hypoluxo, Palm Beach County.

SPRUCE SPIDER MITE (*Oligonychus ununguis*) was heavy on spruce and hemlock in many areas of MARYLAND during the late spring and summer. A FALSE SPIDER MITE (*Brevipalpus russulus*) was collected for the first time in FLORIDA on Thanksgiving cactus (*Zygocactus* sp.) at St. Augustine, St. Johns County, and at San Mateo, Putnam County. TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) and other spider mites were constant pests of roses, azaleas, and many other shrubs and annual flowers throughout ALABAMA. Two-spotted spider mite damaged ornamentals especially in central and eastern WASHINGTON. Unspecified MITES were generally very prevalent and caused much damage to ornamentals in CALIFORNIA and SPIDER MITES, as a group, were 1 of the 3 most prevalent and injurious pests on various ornamentals throughout NEVADA. In ARIZONA, YUMA SPIDER MITE (*Eotetranychus yumensis*) was found on orchid tree (*Bauhinia purpurea*) in mid-April at Yuma, Yuma County, for a new host record.

BROWN GARDEN SNAIL (*Helix aspersa*) was unusually heavy and damaging in CALIFORNIA. Wet weather forced snails to aerial portions of plants for long periods. In ARIZONA brown garden snail was moderate on ornamentals and was present on the walls of a residence in Yuma, Yuma County, on November 15, 1967. SLUGS heavily damaged flowers and ornamentals in Lincoln County, NEVADA, in the summer and fall and were a continuous problem in PENNSYLVANIA all season. Slugs caused damage to seedlings early in the season with much loss to bedding plants. The pests became serious in 1967 due to an ineffective control program. Slugs were as usual quite troublesome in MAINE. These slugs were apparently one of the most common problems in home gardens and flower plantings in the State.

## MAN AND ANIMALS

### Highlights:

MOSQUITOES were again annoying in many areas of the United States and reached normal or above normal levels in most of the States reporting. Several cases of encephalitis occurred in Kansas, but no human arbovirus encephalitis cases were reported in all of Florida. This was an unusually light year for eastern encephalitis activity in Florida. FACE FLY populations were greater than in 1966 in New Jersey, Michigan, Indiana, and South Dakota and were heavier in Illinois than in the past 5 years. HOUSE FLY continues one of the worst pests around feedlots in Kansas and caused much concern around hog production and poultry operations in Alabama. STABLE FLY was the most annoying fly in 1967 on cattle in Wisconsin and on livestock in Iowa. HORN FLY was the most important pest of range cattle in Kansas and untreated cattle in Missouri. HORSE FLIES and BLACK FLIES were annoying to livestock in most of the States reporting. BITING MIDGE annoyance to man was sometimes severe in certain areas of Utah and EYE GNATS remained a great nuisance throughout most of Florida. Three species of CATTLE LICE were serious, especially on range beef cattle throughout Alabama, and were more active during the 1966-67 winter than in the average years in Montana. AMERICAN DOG TICK was serious in some areas of York County, MAINE. NORTHERN FOWL MITE caused serious egg production losses in a caged-layer operation in Burlington County, New Jersey, and heavily infested a breeding flock of 30,000 chickens in Nassau County, Florida. BLACK WIDOW SPIDER was the heaviest in many years in the northwestern counties of Nevada.

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MOSQUITOES, mainly *Aedes* spp., were delayed by cool, wet conditions in MAINE. Sudden and vigorous activity occurred with rising temperatures in most areas. By early June mosquitoes were heavy and annoying throughout most of the State. Additional rainfall in mid-June resulted in a second hatch of mosquitoes and the adults appeared in July. *Aedes* spp. were heavy throughout VERMONT, although their appearance was 2-3 weeks later than usual. Mosquitoes were heavy throughout the season in RHODE ISLAND and were more abundant and annoying to dairy animals in 1967 compared with the last 2 years in NEW JERSEY. In DELAWARE, *Aedes vexans* was more numerous than in 1966 in all trap areas and *A. sollicitans* was slightly more numerous than in 1966 in some areas. *Psorophora ferox* and *A. canadensis* were very numerous and annoying following heavy August rains. The salt marsh species were the heaviest during the late spring and summer in several years on the Eastern Shore of MARYLAND. *A. trivittatus* and *P. ferox* annoyed residents of several communities in northern Prince Georges County. The mosquito season in FLORIDA started about a month later during 1967 than in 1966 due to a record drought in the spring and early summer. Significant numbers of the fresh water species did not appear until July according to light trap collections; whereas, salt marsh *Aedes* were prevalent during June on the lower west coast. These broods might have resulted from the flooding tides that occur there during the summer. Significant numbers were not collected after mid-September. Although the season was short, it was generally more severe than in 1966. Rainfall patterns were probably the main factor. Insecticide resistance in scattered areas and the influence of a well-advanced source reductions program, especially in the coastal counties, hindered attempts at analysis. While other species were reduced by drought, *Mansonia perturbans* became a distinct nuisance in the Gainesville area of Florida. Biting began in late March and continued through April. *Psorophora confinnis* was important on livestock in the southern area, especially during the summer. Outbreaks in 1967 were not as severe as they have sometimes been in previous years. In ALABAMA, *A. sollicitans* and less important species were ever present and annoying to man around homes, outdoor living quarters, and recreational areas throughout the season. This was especially evident along the coastal areas and lakes of the State's many river systems.

Mosquito annoyance began around Toledo in Lucas County, OHIO, about mid-May, but these pests were annoying earlier in wooded areas of more southern sections. *Aedes stimulans* was the most common species taken at that time in incandescent light traps in Lucas County. By the first week of June mosquitoes were abundant throughout Ohio. Adults and larvae of *A. canadensis* were found to be the most common during early August in a Columbiana County marsh area. In MICHIGAN mostly *Aedes* spp. larvae ranged from few to very numerous in the central and southern counties on April 26. Samples on that date included about 70 percent late instars, 20 percent early instars, and 10 percent pupae. The first general adult emergence of the season was on April 30 in areas where temperatures were above 40°F. since April 1. Cool weather during May kept bites low, but large populations of biting *Aedes* spp. adults were widespread during early June. Populations decreased after mid-June, but well-spaced summer rains resulted in above average adult numbers until September. *A. vexans* was the dominant species in August in Michigan. Mosquito emergence began in WISCONSIN in mid-May and a problem was predicted on the basis of abundant rainfall and lowland flooding. Populations gradually increased until the first week of June when some areas began reporting problems. A large emergence occurred the last week of June. The severe biting problem continued through July over the entire State. Early in August biting began to decline, and by the first of September, populations were low and causing little annoyance. *A. vexans* was the major biter in 1967 and others, such as *A. dorsalis*, compounded the problem in Wisconsin. The spring *Aedes* first hatched March 27 in the Minneapolis and St. Paul area of MINNESOTA. By mid-April, 7 species of *Aedes* larvae had been taken, and by the end of April, 22 larval species had been collected. Many spring *Aedes* pupated by May 9 and the first adult *Aedes* was taken during the week ending May 19 after a cool April and early May. Mosquitoes were light until late in June. The largest broods of *A. vexans* occurred in the Minneapolis and St. Paul area as a result of heavy, frequent rains from June 5 on. High numbers occurred over most of the southern half of the State. *Mansonia perturbans* was heavy the last week in June and *A. vexans* accounted for 50 thousand of the 57 thousand mosquitoes taken in light traps the week ending July 1. *Mansonia* spp. continued very troublesome through July into August. Significant numbers of single-brooded spring *Aedes* were still being collected as late as August 1. Seasonal high hatches of *C. tarsalis* and *Anopheles walkeri* were taken the week ending August 4. In the latter half of the season, *Aedes vexans* was generally dominant in all collections. Several rains in August produced new broods of *Aedes vexans*. An egg hatch of 30-55 percent in soil samples taken August 28 indicated fall diapause was well underway in MINNESOTA. Infestations were very prevalent and extremely heavy during June and July, particularly east of the Missouri River, in northeast SOUTH DAKOTA. Mosquitoes caused much irritation to cattle, sheep, and other livestock and, as a result, numerous herds of cattle were sprayed during June. Many cattle were also aerially sprayed for fly control in general and results were excellent.

Mosquitoes were severe throughout IOWA in 1967 as many cities and towns sprayed or fogged for control. In NEBRASKA problems increased due to large amounts of standing water left by excessive rains and flooding in June. By mid-July mosquitoes decreased in most areas, but breeding continued in waste water from irrigation. Mosquitoes were severe locally in KANSAS where *A. vexans* was dominant. Several cases of encephalitis occurred. *Aedes* spp., *Culex* spp., and *Psorophora* spp. were numerous and annoying in north-central, northeast, east-central, and southeast OKLAHOMA from July through September. In ARKANSAS mosquitoes were heavier than normal in central and eastern areas, and in NEW MEXICO *Aedes* spp. were especially heavy and very annoying in fields, orchards, and nurseries in Valencia, Bernalillo, Sandoval, and San Juan Counties. *Culex tarsalis*, *Anopheles earlei*, *Culiseta inornata*, *Aedes increpitus*, and *A. dorsalis* were present in COLORADO in 1967. Mosquitoes were unusually troublesome and and numerous throughout much of UTAH. The late spring rains added to the seriousness of the situation and controls were generally effective in the mosquito control districts. Some progress in MONTANA was made toward permanent control along the Milk River perennial mosquito areas. June rains contributed to problems in Cascade, Prairie, Lincoln, Jefferson, Yellowstone, Madison, Powder River, Meagher, Custer, and Toole Counties. In NEVADA populations were high statewide due to adequate rainfall and were above the levels of 1963-1965. *Aedes dorsalis*, *A. melanimon*, *A. nigromaculis*, *A. vexans*, *Anopheles freeborni*, *Culex tarsalis*, and *Culiseta inornata* were dominant in many areas. *Culex pipiens quinquefasciatus* was recorded for the first time in Nevada in Clark County. Mosquitoes were very annoying periodically in CALIFORNIA but were generally kept in check by mosquito abatement operations. Serious conditions did not develop despite the excessive moisture and late season.

No human arbovirus encephalitis cases were confirmed in all of FLORIDA during 1967. As of November 25, 105 cases of encephalitis of various unknown etiologies were reported to the State Board of Health in Jacksonville. Studies in the Tampa Bay area showed that eastern encephalitis activity was unusually low in 1967. No recoveries were made from mosquitoes, horses, or domestic birds. However, eastern encephalitis virus was identified from a pheasant brain collected in November at Lake Helen, Volusia County, several counties northeast from Tampa Bay. The Tampa Encephalitis Research Center recovered the following arboviruses from mosquitoes collected in the Tampa Bay area from January 1 through December 13, 1967. All 352 pools of *Culex nigripalpus* tested negative in 1967 and have for the past 5 years. This continues the negative evidence accumulated on St. Louis encephalitis virus since the outbreak which involved *C. nigripalpus* as a vector. Of 341 pools of *Aedes infirmatus* tested, 10 tested positive for California encephalitis and 2 for Tensaw virus. Of 291 pools of *A. atlanticus*, 29 tested postive for California encephalitis and 2 for Tensaw while 4 tested positive for Tensaw in 76 pools of *Anopheles crucians*. Overall numbers of *C. nigripalpus* trapped in 1966 and 1967 in Hillsborough County were fairly similar. A distinct population peak occurred in August in both years.

FACE FLY (*Musca autumnalis*) was heavy, 25-30 per animal, in all areas of VERMONT and was much more numerous and troublesome in 1967 than during 1965 and 1966 in NEW JERSEY. Numbers of 10-40 per head were common on dairy cattle in central MARYLAND during August but have been unchanged in PENNSYLVANIA for the past several years. Face fly was light on cattle in the State. Populations invaded many homes throughout VIRGINIA during the fall. Face fly became very annoying to cattle by mid-June in OHIO and a gradual increase continued despite cool weather. In early July counts of up to 40 per face forced cattle to cluster tightly together throughout Ohio in order to reduce the irritation. Averages generally did not exceed 40 per face due to cool weather. However, up to 75 per face occurred as late as early September. Adults generally were slightly heavier than during recent summers in MICHIGAN. Counts of 30+ per face infested some mid-Michigan beef herds during early August on warm sunny days. Cases of pinkeye in pasturing cattle appeared more numerous than in recent years. It was more abundant in 1967 than in the past few years during late July and early August throughout INDIANA. Counts per head ranged 14-30 in the Ohio River area, 6-28 in the west-central and northwestern districts, and 8-43 in the other districts of the southern two-thirds of the State. Populations were greater in 1967 than in the past 5 years in ILLINOIS. By August face fly averaged 10-20 per animal on pastured cattle in the western and northern areas. In MISSOURI populations were generally light until mid-August and early September when counts ranged up to 55 per animal in the northwest and central areas. Populations were light in KANSAS in 1967 and a few flies infested cattle in June in NEBRASKA. In July face fly was increasing but was still light. Populations were generally present throughout Nebraska with the highest counts occurring in the east (up to 35 per face) in late August and early September. Numbers were still light in mid-October. Populations were higher in 1967 than in 1966 in SOUTH DAKOTA. Face fly remained light, less than 5 per head, until mid-August and then increased until early September when up to 75 per face infested cattle in Brookings and Moody Counties. Counts of up to 40 per face occurred in Roberts County at this time while low numbers of up to 5 per face persisted on range cattle through mid-October in the western Black Hills. Aerial sprays provided good face fly control in South Dakota.

Face fly was light in most areas of NORTH DAKOTA, but severe infestations on range animals occurred in the Sandhills area of Ransom and Richland Counties during August. Counts of up to 50 per face were common on cattle while 100 per face appeared on horses. This species was first recorded in the State in 1960 and was reported for the first time in La Moure, Pembina, Cavalier, and Sargent Counties in 1967. Face fly now infests 30 of 56 counties in MONTANA. The uninfested area is the northern group of counties along the Canadian border from Glacier County east through Sheridan County and those bordering North and South Dakota. In IDAHO face fly is now generally distributed throughout the State. Numerous homes and buildings were infested during February, March, and April. By mid-May this fly infested cattle and continued a serious problem on livestock until early September. Counts of 25-50 per face were common in many areas. Large numbers were taken in blacklight traps at Logan in Cache County, UTAH, this season but were less troublesome in 1967 than during 1966 in the State. This species was first discovered in OREGON July 8, 1967, in Wallowa County on cattle and, by the end of September every county except Gilliam and Sherman was infested. Populations generally were light, but as high as 25 per face occurred in some herds. Face fly was probably present on livestock in every county of WASHINGTON. A parasitic nematode (Heterotylenchus autumnalis) was found in 5 western counties. The first record of face fly west of the Cascades in Washington was from Clallam County and has since been recorded in Whatcom, Skagit, Snohomish, San Juan, King, Pierce, Thurston, Okanogan, Kittitas, Walla Walla, and Franklin Counties. Nematode parasites have been found in 5 counties. In Pierce County face fly began to move indoors about September 13.

HOUSE FLY (Musca domestica) caused the worst problem in Gainesville, FLORIDA, in April. Breeding was traced to 15-20 acres of poultry droppings dumped near the edge of town. Very heavy numbers arose from the manure of 50,000 chickens in caged poultry operations near Molino, Escambia County, in May and June. Numerous complaints and turmoil resulted from the heavy buildup in extensive poultry operations in Bradford County. A very heavy population was observed on December 5 at a horse farm in the southern area where much manure and straw near the farm had not been properly disposed of. Thousands of house flies bred in this material and then caused much annoyance to race horses in nearby pastures and stables. In ALABAMA adults were annoying and causing much concern around hog production and poultry operations. Populations increased to heavy levels in many dairy barns late in 1967 in PENNSYLVANIA. Control was difficult to obtain with the standard treatments. House fly was more numerous on dairy animals and poultry in NEW JERSEY in 1967 than during the past 2 years, although buildup was slow due to the cool, wet spring. Generally control was more difficult due to the increasing problem of insecticide resistance. Populations were heavy throughout VERMONT. House fly increased slowly and was the heaviest about cattle barns in WISCONSIN through June. Late in July populations became very high and problems in homes and barns occurred in the southern half of the State. Cool weather late in August and September reduced activity outdoors and apparently forced the house fly indoors where problems occurred in some homes and restaurants. House fly continued one of worst pests around feedlots in KANSAS and was active in homes in northwest ARKANSAS by mid-March. Activity started in early April in OKLAHOMA and numbers became heavy in early June. Populations remained heavy in many areas through mid-October and activity continued until mid-December. This species was numerous in many localities and about farms, especially from August on, in UTAH. The situation on livestock was about normal in the State. House fly continues a problem in CALIFORNIA due to population increases, more solid wastes, livestock feeds, and much unused material in the fields where mechanical harvesting is used.

STABLE FLY (Stomoxys calcitrans) was numerous along the bayshores of west FLORIDA during 1967, about 2-3 weeks earlier than usual. It did not appear on gulf beaches in significant numbers until about September 13. An unusually warm autumn extended the season until about November 1. In NEW JERSEY populations were more numerous in 1967 than in past years due to many available breeding sites. Stable fly was generally light in 1967 in INDIANA, but much annoyance to cattle occurred in the northwest and north-central areas during early August. Numbers increased by June to above average levels and remained high through July and August in ILLINOIS . Counts of 15-40 per animal were common during this period. Stable fly was the most annoying fly on cattle in 1967 in WISCONSIN. Annoyance began on cattle in late May and became severe in some areas from mid-June to late August when cool weather reduced activity. After September 1 this species was a nuisance only on warm days. Stable fly was the most troublesome fly to livestock producers in IOWA even though its appearance was delayed by a cool, dry May. Populations increased to economic levels by mid-July when up to 40 per animal infested dairy herds in east-central NORTH DAKOTA. The first stable fly of the season in NEBRASKA was observed in Lancaster County on June 22. Numbers increased gradually and peaked in August with 25-30 per leg on feedlot animals. As breeding areas dried, populations decreased in the east by mid-August but remained into December. Counts of up to 5 per leg in the Sandhills area were unusual. The increase was probably due to an abundance of rotting vegetation which floods left behind. This species continued one of the worst pests around feedlots in KANSAS. Stable fly became active in early May in OKLAHOMA and was last reported in mid-October. Counts of up to 10 per head occurred on untreated cattle during the summer. The situation was about normal in UTAH in 1967.

HORN FLY (Haematobia irritans) was slightly more numerous in 1967 than during 1966 in NEW JERSEY but was generally below normal on cattle in central MARYLAND. Horn fly was the most persistent pest of cattle in southern FLORIDA during 1967. Counts averaged 400 per animal on beef cattle by late May and remained so until the end of August. Numbers then increased to about 560 per animal on November 10. Infestations were annoying and damaging throughout the season in ALABAMA but were limited to some beef herds where controls were improperly applied. Horn fly appeared earlier than normal in late March in northwest ARKANSAS and was the heaviest in TEXAS on livestock in Jackson and Crockett Counties. In OKLAHOMA populations became active in mid-March and ranged moderate to heavy (300-1,200 per head) on cattle from mid-May through September. Numbers then decreased slowly and disappeared in mid-December. Horn fly was the most important pest on range cattle in KANSAS as numbers became heavy by the end of the summer.

Horn fly was the most important pest of untreated cattle in MISSOURI, but populations were about average for the season in ILLINOIS. Populations were higher in 1967 than in recent years in INDIANA. During August adults peaked at 100-300 per head on pastured cattle in the northwest and west-central districts and 80-500 per head in the southern area. Adults were light on pastured cattle until mid-July in MICHIGAN. Prior to that date, abundant moisture and lush pastures generally made poor breeding conditions. Counts of 300+ per animal became common by early August in mid-Michigan herds. Horn fly caused much annoyance to untreated herds in IOWA in late June and July and increased steadily in June in NEBRASKA. Counts of 500-1,000 per head were the heaviest in late July and early August but subsided by mid-August. Populations were light from late August into September. Populations were heavy but normal on range cattle in eastern and western SOUTH DAKOTA from mid-June through September. Counts of 200+ per side occurred through the first half of the season and peak populations of 500-800 per side were reached in late August and early September. In mid-August over 1,000 per side infested buffalo in Custer State Park. An estimated 300,000+ head of cattle were aerially sprayed for fly control and excellent results were attained. Horn fly was light early in the season in NORTH DAKOTA, but populations increased with warmer temperatures during July. By mid-July untreated range animals were severely infested, with up to 3,000 flies per animal being common. Infestations were very heavy on cattle in 21 counties of MONTANA and ranged 25-300 per side throughout the summer in IDAHO. Up to 2,000 per bull occurred in some Idaho herds. Populations were about normal in UTAH and were present in COLORADO in 1967. Horn fly was about normal in NEVADA but increased in some areas, while infestations were local in many areas of CALIFORNIA.

CATTLE GRUBS (Hypoderma spp.) ranged 1-28 (average 7.4) per animal on 41 percent of the cattle from western NORTH DAKOTA. Larvae were light, 1-10 per animal, in 74 percent of the infested stock; medium, 11-20 per animal, in 22 percent; and heavy, over 20, in 4 percent of the infested animals. Larvae appeared in the backs in mid-February and were still present on May 26 in a few animals. More animals were infested than in 1966, but numbers were less per animal in 1967. Hypoderma spp. were average in NEVADA in 1967. COMMON CATTLE GRUB (H. lineatum) was less abundant than during previous years in FLORIDA. Very few larvae were observed in the backs of animals in the southern area during October, the usual time of occurrence. Larval counts of 8-10 per animal were the heaviest infestations in December. Populations and damage ranged light to moderate statewide in ALABAMA due probably to better and more widespread use of effective pesticides. Common cattle grub populations were similar to those of 1966 in ARKANSAS but were lighter than occurred many years ago. Common cattle grub ranged light to moderate on untreated cattle from early January to late March in OKLAHOMA and fall activity began in late September and continued through December. Common cattle grub and NORTHERN CATTLE GRUB (H. bovis) were common in IOWA in 1967. During the week ending January 27 fourth and fifth instars of H. lineatum were collected from one animal in the south-central area for the first larval collection of the season. The State has an active larval control program. In WISCONSIN over 1,050 dairy heifers were examined for H. bovis and H. lineatum from February through May. Statewide, 48 percent of the animals examined were infested. The number of heifers infested was the highest in the west-central area and the lowest in the eastern and southeastern counties. The larval average per infested animal was the highest in the northern and northeastern counties. In 1967, H. bovis and H. lineatum were at the same or slightly below the level of 1966 in SOUTH DAKOTA. Larvae averaged 5 per animal on untreated young stock in Jackson and Butte Counties. Common cattle grub and northern cattle grub were about normal in UTAH in 1967. Several thousand cattle were treated for grub control. H. lineatum and H. bovis occurred statewide in MONTANA and systemic insecticides were used very effectively. In CALIFORNIA both species occurred early and created local problems. The presence of these pests in California is due to shipments of stock cattle into the State.

As a result of extensive Federal-State-local cooperative activities, the United States continues to remain free of self-sustaining SCREW-WORM (Cochliomyia hominivorax) populations. This was accomplished through successive stages beginning with the southeastern States in 1958; proceeding westward to the States of Arkansas, Louisiana, Oklahoma, New Mexico, and Texas in 1962; and finally ending in the States of Arizona and California in 1965. The last established screw-worm populations in the U.S. were eliminated by the spring of 1966.

In the absence of a natural barrier in the Southwest, such as a high mountain range or a wide expanse of water, a unique sterile fly barrier has been established. It is not a "solid wall" against screw-worm migrating from Mexico.

The barrier is a designated area presently extending along the Mexico-United States border from the Gulf of Mexico to the Pacific Ocean. It includes an area of approximately 482,500 square miles in the United States and Mexico. The northern limits include portions of those States bordering Mexico, and the southern limits extend into northern Mexico.

The barrier zone operation is the only available means for protecting the entire country against the natural migration of screw-worm from Mexico. The economic benefits to the livestock industry are enormous. Livestock production is increased by greater numbers of healthy animals. Production costs are greatly reduced by eliminating the need for special care and handling of diseased animals.

During 1967, the following 872 laboratory-confirmed cases of screw-worm were reported in the United States: Texas 835, New Mexico 0, Arizona 23, California 14. A total of 1,430,036,750 sterile flies was released in the United States during 1967. From the Mexico portion of the barrier zone there were 5,563 laboratory-confirmed cases of screw-worm and a total of 4,925,000,200 flies was released. The cost of maintaining the sterile fly barrier zone is approximately $5,000,000 per year. For the past two years, screw-worm eradication activities have been hampered by weather conditions which favor the spread of native screw-worms. No cases of screw-worm have been reported in New Mexico since November 8, 1966.

HORSE FLIES were unusually heavy and annoying in Addison County, VERMONT, while *Tabanus* spp. annoyed stock throughout the State. DEER FLIES (*Chrysops* spp.) and *Tabanus* spp. caused much annoyance to man and animals in counties bordering the Chesapeake Bay in MARYLAND. *Chrysops* spp. adults were numerous in localized areas of WISCONSIN in early June. Populations remained high through July and early August and caused much annoyance to humans, cattle, and deer until cool weather in late August greatly reduced activity. STRIPED HORSE FLY (*T. lineola*) was generally light (3 per animal) on dairy herds in east-central NORTH DAKOTA. *Chrysops* spp. and *Tabanus* spp. were heavy in Powder River, Cascade, Rosebud, Custer, Ravalli, Gallatin, Fergus, Silver Bow, Judith Basin, McCone, Hill, Carbon, Madison, Yellowstone, and Beaverhead Counties, MONTANA. *Tabanus* spp. averaged less than 5 per head on livestock from early May through September in OKLAHOMA. Counts ranged as high as 150 per head on isolated cattle in east-central Oklahoma in August. *T. subsimilis* was heavy and caused much annoyance to horses in the Carlsbad area of Eddy County, NEW MEXICO. Horse flies and deer flies were troublesome in Rich, Tooele, and Box Elder Counties, UTAH, as well as numerous mountain pastures in other sections.

BLACK FLIES were delayed by cool, wet weather in MAINE. Sudden and vigorous activity occurred with rising temperatures in most areas. By early June numbers were heavy and annoying throughout most of the State. Black flies were heavy in wooded areas of VERMONT but caused the normal seasonal nuisance in RHODE ISLAND. In NEW JERSEY, *Simulium* spp. caused much annoyance by feeding in the ears of dairy animals in several Somerset and Hunterdon County herds. In PENNSYLVANIA, *Prosimulium magnum*, *P. mixtum*, *Simulium jenningsi*, *S. tuberosum*, *S. venustum*, and *S. vittatum* were the most prevalent of the 22 species causing a serious nuisance in 2 resort areas. Adults of *S. venustum* were annoying in several eastern areas of NORTH DAKOTA while swarms of unspecified black flies annoyed horses in the Jordan and Glendive areas, MONTANA, and livestock and humans in the Three Forks area. In UTAH black flies annoyed livestock and humans in the Logan and Blacksmith Fork Canyons of Cache County, in the Beaver Dam and Fielding area of Box Elder County, and in the mountain areas of Weber County above Huntsville. *S. tescorum* appeared in epidemic numbers along the Colorado River in the Parker area of San Bernardino County, CALIFORNIA.

A MARCH FLY (*Plecia nearctica*) was unusually heavy in the Gainesville area of FLORIDA and in many of the adjacent counties during late August and September. This species was reported heavy in yards and on vehicles by area residents. EYE GNATS (*Hippelates* spp.) were the most numerous in several years at Hastings, Florida, and remained a great nuisance throughout most of the State. Adults of a CHIRONOMID MIDGE (*Glyptotendipes barbipes*) were very annoying to humans around buildings in the Denton area of Caroline County, MARYLAND. A BITING MIDGE (*Culicoides stellifer*) was annoying in the eastern half of OKLAHOMA from July to early October. In UTAH, unspecified BITING MIDGES annoyed humans, sometimes severely, in those parts of Tooele, Box Elder, and Salt Lake Counties closest to the Great Salt Lake. These pests were also troublesome at Moab in Grand County, from Delta through Deseret in Millard County, at Bluff in San Juan County, south from Nephi in Juab County, and in other areas of Utah. BLACK BLOW FLY (*Phormia regina*) was very common about farms and/or range areas as an occasional larva infested injured livestock or pets in Utah. SNIPE FLIES (*Symphoromyia* spp.) were very troublesome to man in Logan Canyon and Franklin Basin of Cache County, Monte Cristo and Allen Canyon of Rich County, Daniels Canyon of Wasatch County, Mt. Timpanogos Loop in Utah County, and in various other mountainous areas of Utah. A LOUSE FLY (*Lipoptena mazamae*) was heavy on deer in east-central OKLAHOMA during October and November and a NOSE BOT FLY (*Cephenemyia* sp.) was heavy in deer heads in the same area during January, November, and December. SHEEP KED (*Melophagus ovinus*) was a pest in IOWA and was common and damaging in UTAH and so many herds were sprayed following the spring shearing. SHEEP BOT FLY (*Oestrus ovis*) was common in 1967 and HORSE BOT FLY (*Gasterophilus intestinalis*) was more annoying than usual to horses in many localities in Utah.

CATTLE LICE were average in NEVADA and were about normal in UTAH as many thousands of beef cattle were dipped or sprayed. Nearly all beef was treated in Sevier County, Utah. In MONTANA, LONG-NOSED CATTLE LOUSE (*Linognathus vituli*), SHORT-NOSED CATTLE LOUSE (*Haematopinus eurysternus*), and CATTLE BITING LOUSE (*Bovicola bovis*) activity was greater during the 1966-1967 winter than in the average year. Short-nosed cattle louse infested as usual about 2 percent of the cattle while long-nosed cattle louse was a statewide problem. A CATTLE LOUSE (*Solenopotes capillatus*), cattle biting louse, short-nosed cattle louse, and long-nosed cattle louse ranged light to moderate in localized areas of IOWA during a survey in January and February. *S. capillatus* was normal in ARKANSAS. Mainly short-nosed cattle louse ranged moderate to heavy in many areas of OKLAHOMA until early April and fall activity began in mid-November. Cattle biting louse, long-nosed cattle louse, and short-nosed cattle louse were serious, especially on range beef cattle, throughout ALABAMA as much weight and vitality were lost during the critical late winter months. CATTLE TAIL LOUSE (*H. quadripertusus*) infestations were spotty in southern FLORIDA throughout 1967. During November and December numbers were greater than at any time since the previous winter. Instances were most frequent on ranches where much movement of stock from other areas occurred. HOG LOUSE (*H. suis*) was a pest in IOWA, and although present throughout ALABAMA, was not serious on swine under well-managed conditions. Hog louse ranged moderate to heavy until early May in OKLAHOMA and fall activity began in early December. CHICKEN BODY LOUSE (*Menacanthus stramineus*) was heavy in some flocks in northwest ARKANSAS while DOG SUCKING LOUSE (*Linognathus setosus*) averaged above normal in Washoe County, NEVADA. A GOAT SUCKING LOUSE (*L. africanus*) severely infested 3,000 head of sheep at Newdale, IDAHO, for a new State record.

VESPID WASPS (*Vespula arenaria* and *Polistes* spp.) and BALD-FACED HORNET (*V. maculata*) were widespread and created many control problems throughout MONTANA. These wasps were present around homes as well as fruit picking, livestock drinking, and outdoor recreation areas in 15 counties. YELLOW JACKETS were very troublesome in some canyon and municipal camp grounds, about fishing and hunting areas, and around farms and homes in UTAH, and numerous people were stung. Yellow jackets were well controlled in most recreational areas of CALIFORNIA. A severe infestation developed on Catalina Island and some local annoyance occurred throughout the State. CRAZY ANT (*Paratrechina longicornis*) became established in a local area of San Diego, San Diego County, in early December in the same State. FLEAS (*Ctenocephalides* spp.) were annoying in homes all year in ALABAMA and control efforts were continuous and difficult. Flea problems in homes increased over those reported in 1966 in NEW JERSEY. Most infestations occurred during the summer and fall. Flea epidemics developed progressively in local areas over CALIFORNIA and annoyed homeowners more than usual in Douglas County, OREGON, in 1967. BED BUG (*Cimex lectularius*) infested poultry in northwest ARKANSAS in October. This pest remained a problem in several localities of UTAH with 5 reports received from Salt Lake County. BLOODSUCKING CONENOSE (*Triatoma sanguisuga*), as well as *T. lecticularius* and *T. gerstaeckeri*, were reported to have fed on sleeping humans in TEXAS. All 3 species are known to transmit the causative agent of Chagas disease.

AMERICAN DOG TICK (*Dermacentor variabilis*) was serious in some areas of York County, MAINE, in late June. A dog died and several others were severely weakened due to tick feeding in York, Kittery, and Kennebunk. Additional problem areas developed in late July in Waterford, Albany, Otisfield, in the area around and adjoining Crooked River, and in some camp sites on the west side of Norway Lake. Although very heavy early in the season in RHODE ISLAND, it declined in late June, sooner than last year. Adults were above normal in southern and central MARYLAND. Large numbers of *D. variabilis* were observed in the area west of a line from Marquette to Manistique in Upper MICHIGAN during a survey conducted the third week of June. American dog tick became active in some northern counties of WISCONSIN in late April. Numbers had gradually increased until mid-July but declined thereafter. After mid-August few reports of annoyance were received. Populations were very high in some areas as up to 50 ticks per day per man were removed from laborers in the woods of Jackson County in mid-July. In MINNESOTA this tick was very numerous in wooded areas by June 9 and many reports were made from the Minneapolis and St. Paul area. This species was numerous and troublesome in the northern wooded areas and was still active in mid-July from the Minneapolis and St. Paul area northward. American dog tick caused much concern on pets in many areas of OKLAHOMA, and was observed on a dog in the Lewiston area, IDAHO, in a rare State occurrence.

BROWN DOG TICK (*Rhipicephalus sanguineus*) was scattered in RHODE ISLAND and was heavier than in 1966 in homes and apartments in NEW JERSEY. Brown dog tick annoyed dogs and residents inside homes throughout MARYLAND. This species and American dog tick were abundant in PENNSYLVANIA although brown dog tick was more widely distributed in the State. Brown dog tick was a pest in IOWA and invaded yards and dog kennels at Tucson in Pima County, ARIZONA, during mid-August. In CALIFORNIA many local infestations in households and on dogs occurred but were much lower than in several years. Brown dog tick was found in Shasta County, the most northern record in the State. LONE STAR TICK (*Amblyomma americanum*) was heavier than normal in ARKANSAS and was heavy in Goliad County, TEXAS, in mid-March. Lone star tick was heavy on cattle in OKLAHOMA from early May through September.

The number of cases of equine piroplasmosis remained about the same in FLORIDA. A total of 8 cases was reported in 1967 compared with 9 cases in 1966. This disease is transmitted by TROPICAL HORSE TICK (*Anocentor nitens*). BLACK-LEGGED TICK (*Ixodes scapularis*) and WINTER TICK (*Dermacentor albipictus*) became heavy on wildlife and livestock during the winter in OKLAHOMA while ROCKY MOUNTAIN WOOD TICK (*D. andersoni*) was heavy in Richland, Carbon, and Garfield Counties, MONTANA. *D. andersoni* ranged 50-100 per lamb in a check of 1,500 lambs and 800 ewes in the upper Poison Creek areas of Owyhee County, IDAHO. A HARD-BACKED TICK (*I. pacificus*) was very heavy on man, dogs, birds, and domestic and wild animals in CALIFORNIA. No cases of paralysis occurred in domestic animals, but one deer was paralyzed in Calaveras County.

EAR TICK (*Otobius megnini*) occurred at Belle Glade, FLORIDA, in May but is generally not very common in the southern area. Ear tick was moderate on cattle and horses in Van Zandt and McLennan Counties, TEXAS, but was lighter in 1967 in Beaver County, UTAH.

NORTHERN FOWL MITE (Ornithonyssus sylviarum) caused serious losses to egg production in a caged-layer operation in Burlington County, NEW JERSEY, during June. Northern fowl mite heavily infested a breeding flock of 30,000 chickens at a hatchery in Callahan, Nassau County, FLORIDA, as this species numbered thousands per bird. Several hens were dead and others were dying. The increase in late February and early March resulted from improper control applications. O. sylviarum was heavy in some flocks in northwest ARKANSAS and infested chickens in Gonzales County, TEXAS. This species was very severe on domestic and wild fowl in CALIFORNIA where populations were heavier than previously. Many household infestations occurred in the State. TROPICAL RAT MITE (O. bacoti) infestations of households and humans occurred less frequently in the State while A CHIGGER MITE (Neotrombicula cavicola) infested newborn calves in Lake County. An ACARID MITE (Caloglyphus mycophagus) was locally heavy in earthworm beds in Orange County, California. N. cavicola was annoying in the eastern half of OKLAHOMA from July to early October.

An outbreak of BROWN RECLUSE SPIDER (Loxosceles reclusa) occurred in a high school and college building in central ILLINOIS. The spread of this spider continued during 1967 and it is now found as far north as Chicago. This species was found for the first time in 1967 in Cook, Mason, Douglas, Clark, Effingham, and Union Counties and has now been found in a total of 20 counties since first reported in the State in 1957. L. reclusa specimens have been collected in homes from 7 widely separated areas of ALABAMA. No bites of humans have been recorded. This species has now been collected in 11 counties. Brown recluse spider activity continued in homes in many areas of OKLAHOMA. A SCYTODID SPIDER (L. unicolor) was reported from San Bernardino County, CALIFORNIA. BLACK WIDOW SPIDER (Latrodectus mactans) occurred in garages and in and about homes in many localities in UTAH. This species was common about and entering homes in the northern area during the fall and was reported as the most common ever in Utah County. L. mactans was the heaviest in many years in the northwestern counties of NEVADA where large numbers invaded homes, schools, motels, and warehouses in September and October. Black widow spider was often reported in CALIFORNIA and heavily infested a powerhouse at Sahuarita in Pima County, ARIZONA, where sprays and resin strips were used to control this pest during mid-November. A COMB-FOOTED SPIDER (L. variolus) was observed again in the same general areas of northern Lower MICHIGAN as during 1966. No problems with biting were reported in the State.

## HOUSEHOLDS AND STRUCTURES

### Highlights:

TERMITES were serious pests of structures in the country during 1967, the number of infestations increasing over that of last year in some areas. COCKROACHES were troublesome in homes in some areas. EUROPEAN EARWIG was a major nuisance to homeowners in Maine and was heavy in other eastern areas. CLOVER MITE was heavy in Vermont and about normal in most other areas.

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) was one of the most important structural pests in PENNSYLVANIA. Activity increased slightly in the northern tier of counties. The first alates of the season in RHODE ISLAND appeared on January 22. There was the normal number of complaints. Eastern subterranean termite continued to be a major structural pest throughout ALABAMA. Infestations of Reticulitermes sp. in homes in NEW JERSEY were very extensive and the number increased appreciably over that of 1966. The number of flights and infestations of subterranean termites were again above normal in all areas of MARYLAND. Unspecified TERMITES were the most serious structural pests throughout VIRGINIA in 1967. There were many spring and autumn flights of R. virginicus in FLORIDA, following rains. Unspecified SUBTERRANEAN TERMITES were structural pests in IOWA and were a problem in OKLAHOMA. Alates of Reticulitermes sp. were collected in homes in Hutchinson and Brown Counties and in the Court

House in Gregory, Gregory County, SOUTH DAKOTA, from mid-March to the end of June. Four homes, which were damaged by *R. tibialis* at Aberdeen, Brown County, required treatment and structural repair. In MONTANA, *R. tibialis* was reported 6 times in buildings in Roundup, Ryegate, Billings (twice), Livingston, and Ekalaka. Termites infested any wood in contact with the ground in Ravalli County, Montana. WESTERN SUBTERRANEAN TERMITE (*R. hesperus*) and *R. tibialis* infestations continued to increase in NEVADA. More damage was reported in Clark, Douglas, and Humboldt Counties, and especially in Washoe County. Western subterranean termite infested a large number of homes throughout UTAH. Termites were the most damaging and publicized pest in CALIFORNIA during 1967. Occurrence of these pests was about the same as in past years. Western subterranean termite and WESTERN DRYWOOD TERMITE (*Incisitermes minor*) were the dominant species involved.

OLD-HOUSE BORER (*Hylotrupes bajulus*) appeared less abundant in RHODE ISLAND than it was a decade ago. Evidence of an infestation was found in Lincoln. It was one of the most important structural pests in PENNSYLVANIA. The number of old-house borer problems in NEW JERSEY was greater in 1967 than in 1966. During the spring, this pest emerged through tempered Masonite and built-up roofs at Hastings, FLORIDA.

POWDER-POST BEETLES were more prevalent than previously in CALIFORNIA. BAMBOO POWDER-POST BEETLE (*Dinoderus minutus*), *Lyctus brunneus*, *L. cavicollis*, and *Lyctus* sp., probably *opaculus*, were the predominant species. Powder-post beetles damaged several Cache and Salt Lake County homes in UTAH.

A CARPENTER ANT (*Camponotus vicinus*) was a nuisance in and around homes in Grant, Chaves, and Dona Ana Counties, NEW MEXICO. BLACK CARPENTER ANT (*C. pennsylvanicus*) was a structural pest in IOWA. Infestations of an unspecified carpenter ant increased in homes in NEW JERSEY. Inquiries and complaints concerning *Camponotus* spp. continued to increase in RHODE ISLAND. This increase may have been associated with increased residence in suburban areas. Infestations of CARPENTER BEE (*Xylocopa virginica*) apparently increased in homes throughout Rhode Island and New Jersey.

For the past several years STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) has entered houses in MONTANA with greater frequency this year than last year. This year it was reported from Pendroy, Glendive, Sidney, Scobey, Culbertson, Fairfield, Choteau, and Richland. Strawberry root weevil was heavy in homes throughout the northern half of PENNSYLVANIA. Strawberry root weevil house infestations apparently decreased in RHODE ISLAND. Strawberry root weevil and BLACK VINE WEEVIL (*B. sulcatus*) problems in NEW JERSEY homes increased over those reported in 1966. A LEAF-MINING WEEVIL (*Odontopus calceatus*) exploded in and around the Pittsburgh area of Pennsylvania. Thousands entered buildings and homes. Heavy flights thickly splattered the windshields of automobiles which had traveled only a few miles.

ELM LEAF BEETLE (*Pyrrhalta luteola*) entered many homes in Salt Lake and Weber Counties; some homes at Green River in Emery County, Kanab in Kane County, and occasionally elsewhere in UTAH. Elm leaf beetle was a minor problem in PENNSYLVANIA homes in May after leaving hibernation. It developed into a major nuisance in late July and August when the new brood moved into homes in the east-central area. A GROUND BEETLE (*Amara* sp.), widely distributed and very abundant for several summer months, was a big nuisance in many homes in Pennsylvania. As many as 100 beetles infested a home at a given time.

GERMAN COCKROACH (*Blattella germanica*) and BROWN-BANDED COCKROACH (*Supella supellectilium*) were the most frequently encountered cockroaches in RHODE ISLAND. *B. germanica* appears resistant to a chlorinated hydrocarbon in this State. German cockroach was the most troublesome of the 4 cockroaches commonly found in NEW JERSEY: German cockroach, AMERICAN COCKROACH (*Periplaneta americana*), ORIENTAL COCKROACH (*Blatta orientalis*), and brown-banded cockroach. However, inquiries regarding all species increased. In urban and suburban MARYLAND, German cockroach and brown-banded cockroach were widespread and abundant. German cockroach was the most important of several cockroaches that were widespread throughout ALABAMA. Many treatments were made for Blattella sp. during late August in homes at Yuma, ARIZONA. Cockroaches have become increasingly serious in homes and restaurants in urban UTAH. Most infestations were of brown-banded or oriental cockroaches with fewer German and American cockroach infestations encountered. Brown-banded cockroach infested a school in Humboldt County, NEVADA, for a new county record. Cockroaches were very active in CALIFORNIA. Brown-banded and German cockroaches were the main offenders.

EUROPEAN EARWIG (Forficula auricularia) was a major annoyance for homeowners in many areas of MAINE. Cumberland County appears to be generally infested; many sections experienced very heavy populations, particularly Portland and South Portland. This pest was a problem in Oxford County. Heavy numbers were reported further north along the coast in Knox County at Thomaston, Rockland, and Camden; at Belfast, Waldo County; and inland, at Augusta. Skowhegan, far inland, also reported substantial numbers. The coastal areas of Hancock County reported much activity in late August. Numerous complaints of the numbers in and around homes occurred in VERMONT. Extremely heavy infestations occurred throughout RHODE ISLAND. The abundance of European earwig in all areas of PENNSYLVANIA was considered a definite nuisance. It has not as yet reached many places in MONTANA. European earwig was numerous about homes and gardens in UTAH, being especially troublesome in Rich, Garfield, Kane, Emery, and Morgan Counties. It also infested many public campgrounds. European earwig entered residences in CALIFORNIA more often than usual.

A BURROWING STINK BUG (Pangaeus bilineatus) appeared at the same time and in the same place as it did in 1966 in PENNSYLVANIA. Thousands appeared in a home and caused much concern. Although BOXELDER BUG (Leptocoris trivittatus) was a nuisance in several areas of NEW JERSEY, infestations did not appear to be as heavy as in 1966. Boxelder bug populations were the lowest in several years statewide in MARYLAND and were unusually light in homes in KANSAS. Boxelder bug was one of the most troublesome pests in OREGON. More than the usual number of complaints and inquiries occurred during and after the long, dry summer. Boxelder bug was moderately troublesome in UTAH. It entered homes chiefly in the fall and spring. A COREID BUG (Arhyssus crassus) frequently entered residences in CALIFORNIA; it was very difficult to control. A LEAF-FOOTED BUG (Leptoglossus clypealis) entered more homes than previously in California.

SMALLER YELLOW ANT (Acanthomyops claviger) was the most common species reported in PENNSYLVANIA homes during the fall. LARGER YELLOW ANT (A. interjectus) and PAVEMENT ANT (Tetramorium caespitum) were very common throughout NEW JERSEY. They continued to be troublesome through November. SOUTHERN FIRE ANT (Solenopsis xyloni), a CARPENTER ANT (Camponotus essigi), Pheidole sp., and ARGENTINE ANT (Iridomyrmex humilis) were prevalent in CALIFORNIA. In Dona Ana and Chaves Counties in NEW MEXICO, southern fire ant was a nuisance in homes.

CLOVER MITE (Bryobia praetiosa) was heavy in homes at Barre and Burlington, VERMONT. Numbers were very heavy in all parts of RHODE ISLAND in the spring. Individual populations appeared to be consistently heavier than previously. Migrations into homes in NEW JERSEY during the winter and early spring did not appear to be heavier than those reported during 1966. During the spring, thousands of clover mites migrated into homes in suburban MARYLAND. In VIRGINIA clover mite was a nuisance in many homes from January to April and again during the fall. This mite was active in homes in early March in ARKANSAS and was among the more common pests in IOWA. In MONTANA clover mite was reported in 3 northeastern, 3 southeastern, 1 central, 3 south-central, and 7 west-central counties. It entered several hundred homes in UTAH in the spring and some in the fall and winter. Spring infestations ranged from normal to lighter numbers in some parts. Heavy migrations into homes at Phoenix, ARIZONA, occurred during late April. Migration into homes during the winter and spring continued to increase in NEVADA, especially in Clark County. Clover mite infestations were very light in a few locations in CALIFORNIA.

## STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) infestations increased over those reported during 1966 in NEW JERSEY and this was one of the primary stored-product pests in the State during 1967. In FLORIDA, saw-toothed grain beetle was heavy in many 1-pound bags of rice in an entire lot in a grain storage building at Bartow, Polk County, in September. This pest infested dried foods more frequently in INDIANA during 1967 and damaged stored products in TEXAS. Saw-toothed grain beetle was present where large amounts of wheat or other small grains were stored and no controls were practiced in UTAH. This pest was also common in shelved cereals. Saw-toothed grain beetle infestations occurred in chop mills and flour mills at Helena, Cut Bank, and Roundup, MONTANA, and were encountered in many home kitchens. FOREIGN GRAIN BEETLE (*Ahasverus advena*) was one of the common pests of stored products in IOWA.

CONFUSED FLOUR BEETLE (*Tribolium confusum*) and RED FLOUR BEETLE (*T. castaneum*) were also frequently found in chop mills and flour mills as well as home kitchens, at Helena, Cut Bank, and Roundup, MONTANA. Red flour beetle was present where large amounts of wheat or other small grains were stored in UTAH and no controls were applied. Confused flour beetle was a common stored-product pest in IOWA. Confused flour beetle and red flour beetle infestations in dried foods were encountered more often in INDIANA during 1967 than last year. Red flour beetle occurred in feed products in eastern ARKANSAS.

CIGARETTE BEETLE (*Lasioderma serricorne*) continued to be a common pest of a wide variety of stored products during 1967 in FLORIDA. Large numbers were reported in homes in Gadsden County during September. This pest infested feed in eastern ARKANSAS. DRUGSTORE BEETLE (*Stegobium paniceum*) was one of the two most frequently reported pests of stored products in PENNSYLVANIA.

A DERMESTID BEETLE (*Trogoderma parabile*) increased in packaged dry foods in INDIANA during 1967. There has been a heavy buildup of this pest in the State during the past 2 years. Unspecified DERMESTID BEETLES infested large amounts of wheat and other small grains in storage in UTAH where no controls were practiced. These pests were common in shelved cereals in Utah and also infested spices.

BROWN SPIDER BEETLE (*Ptinus clavipes*) and LESSER MEALWORM (*Alphitobius diaperinus*) damaged stored products in TEXAS. Unspecified MEALWORMS infested large amounts of stored wheat and other small grains in UTAH, especially where no controls were practiced. A WEEVIL (*Sitophilus* sp.) was heavy in an entire lot of one-pound bags of rice in a grain storage building at Bartow, FLORIDA, in September.

POTATO TUBERWORM (*Phthorimaea operculella*) adults were moderate and larvae were numerous in a storage room of a potato chip establishment in Detroit, MICHIGAN, on April 4. This was the first known infestation in the State for past 2 years. Prompt eradication procedures were instigated. No evidence of other field or storage infestations of this pest were found in Michigan during 1967. Potato tuberworm damaged some stored sweetpotatoes in eastern TEXAS. ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) was a serious pest of stored peanuts, corn, and grain sorghum in ALABAMA, and was a concern in feed manufacturing establishments. Infestations were heavy in stored corn in several areas of MISSOURI during the fall.

INDIAN-MEAL MOTH (*Plodia interpunctella*) infestations increased during 1967 over those reported during 1966 in NEW JERSEY and were of primary concern in stored products in the State. Indian-meal moth was one of the 2 most frequently reported stored-product pests in PENNSYLVANIA. Infestations of this pest were heavy in commercial storage buildings in the Phoenix area of Maricopa County, ARIZONA, during January. Repeated control efforts were necessary. ALMOND MOTH (*Cadra cautella*) was a serious stored-product problem and the most important pest of stored peanuts in ALABAMA.

## BENEFICIAL INSECTS

### Highlights:

LADY BEETLES effectively reduced high populations of corn leaf aphid on corn and green peach aphid on tobacco in Maryland and were significant in controlling aphids on various crops in Alabama. BIG-EYED BUGS and FLOWER BUGS were important predators in Arizona and Alabama while LACEWINGS and HOVER FLIES effectively kept cotton pests at low levels in Nevada. PRAYING MANTIDS controlled a buildup of differential grasshopper on 4,000 acres of citrus in Yuma County, Arizona. A EULOPHID WASP and a CYNIPID WASP in Florida were reported as new North American records in 1967. Two species of PHYTOSEIID MITES showed promise in partially controlling phytophagus mites in pear areas of Oregon.

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All stages of LADY BEETLES in association with high aphid populations were numerous in Pierce, Thurston, Lewis, and Clark Counties, WASHINGTON, during July. Numerous specimens occurred in homes in King and Snohomish Counties in February. Many species were found throughout MONTANA on alfalfa and other crops and were abundant on the range and on ornamentals. Lady beetles and MELYRID BEETLES effectively held cotton pests at low levels in NEVADA while mostly CONVERGENT LADY BEETLE (*Hippodamia convergens*) and *H. quinquesignata* held pea aphid in check in all but a few areas of Lyon County. Lady beetles were unusually light in alfalfa over most of UTAH while adults and larvae were active from June through December on various field crops in Graham, Maricopa, Pinal, and Yuma Counties, ARIZONA. Mostly *Hippodamia* spp. were very common where pea aphid or spotted alfalfa aphid occurred in alfalfa in NEW MEXICO. Lady beetles reduced economic pests in TEXAS and were active in early alfalfa in KANSAS. Lady beetle adults and/or larvae ranged moderate to heavy throughout the growing season in IOWA. In MARYLAND covergent lady beetle and others effectively reduced high populations of corn leaf aphid on corn and green peach aphid on tobacco during August and September. *H. convergens* became active in northwest ARKANSAS the second week of March. This species is considered the most important lady beetle in all areas of Arkansas except the southwest where *Coleomegilla maculata* was the most important. Convergent lady beetle and another LADY BEETLE (*C. maculata fuscilabris*) were very heavy and considered 2 of the more important lady beetles controlling mostly aphids in cotton, grain, vegetables, and other crops in ALABAMA. *H. convergens* was the most common lady beetle on small grains in Alachua, Washington, and Jackson Counties, FLORIDA, during April. A LEAF BEETLE (*Agasicles* sp.) has been released at other key points since the original release of 250 adults at Jacksonville in 1965 and has spread naturally on its specific host, alligatorweed, over most of Florida. Biological control of this weed has been very promising.

DAMSEL BUGS and MINUTE PIRATE BUGS effectively held cotton pests at low levels in NEVADA. Damsel bug adults and nymphs were very abundant in greenbug-infested wheat in Curry and Roosevelt Counties, NEW MEXICO, in October and November. Damsel bugs reduced economic pests in TEXAS while *Nabis* spp. became active in northwest ARKANSAS in early March and remained active until November. *Nabis* spp. ranged moderate to heavy throughout the growing season in IOWA and generally were about normal throughout UTAH. BIG-EYED BUGS effectively held cotton pests to low levels in NEVADA while *Geocoris* spp. and FLOWER BUGS (*Orius* spp.) were generally about normal throughout Utah. *Geocoris* spp. were moderate in alfalfa in Maricopa, Pinal, and Yuma Counties, ARIZONA, during October and *Orius* spp. were heavy in alfalfa in Maricopa and Yuma Counties during the first half of November. *Geocoris* spp. became active in soybeans in late June and probably were the most important predators on this crop in ARKANSAS. A BIG-EYED BUG (*G. punctipes*) and *Orius* spp. were important predators of bollworm and tobacco budworm eggs and larvae in cotton, corn, tomatoes, soybeans, and beans in ALABAMA. Two ASSASSIN BUGS (*Reduvius vanduzeei* and *R. sonoraensis*) were collected from light traps in Clark County, NEVADA. These were new State records. Other ASSASSIN BUGS (*Sinea* spp.) averaged 40 per 100 sweeps in alfalfa fields in Maricopa and Pinal Counties, ARIZONA, during early October.

GREEN and BROWN LACEWINGS were noticed especially in Gallatin, Hill, and Rosebud Counties, MONTANA. During November, *Chrysopa* spp. and *Hemerobius* spp. were heavy in northeast citrus orchards in Maricopa County, ARIZONA, and were heavy on alfalfa in Maricopa and Pinal Counties. Unspecified LACEWINGS effectively kept cotton pests at low levels in NEVADA, reduced economic pests in TEXAS, and were common but not heavy throughout the growing season in IOWA. Green lacewings were active in early alfalfa in KANSAS and larvae of the GOLDEN-EYE LACEWING (*Chrysopa oculata*) were important aphid predators on corn, grain sorghum, cotton, ornamental shade trees, and vegetables in ALABAMA.

A HUMPBACKED FLY (*Apocephalus antennatus*) was reared from the larvae of lampyrid beetles, *Photuris* spp., at Gainesville in Alachua County, FLORIDA, and emerged in May 1967 for a new State record. An adult of a SYRPHID FLY (*Platycheirus quadratus*) was collected in Calhoun County for another new Florida State record. SYRPHID FLY larvae were important predators of aphids on corn, grain sorghum, cotton, ornamental shade trees, and vegetables in ALABAMA and reduced economic pests in TEXAS. Syrphid flies were unusually heavy in the Willamette Valley of OREGON during the week of June 29 and were presumably due to numerous APHIDS on grass, grains, and ornamentals earlier this spring. HOVER FLIES effectively held cotton pests to low levels in NEVADA. Pupation of a BEE FLY (*Heterostylum robustum*) was 50 percent complete in Walla Walla County, WASHINGTON, by May. Male alkali bees were active by June 8 at the earliest western sites. A few of these alkali bee parasites had laid eggs in the alkali bee emergence holes. The first adults of a CONOPID FLY (*Zodion obliquefasciatum*) were found in Franklin County, WASHINGTON, on July 8. This species is also a parasite of alkali bee.

Heavy numbers of PRAYING MANTIDS controlled a buildup of *Melanoplus differentialis* on 4,000 acres of citrus at Tacna in Yuma County, ARIZONA, from mid-October through mid-November.

HONEY BEE (*Apis mellifera*) swarms first appeared during the week of May 22 in RHODE ISLAND. Weather was unfavorable for honey bee activity in the State. In OHIO early spring activity was restricted by the cool, wet weather and poor colony condition was caused partly by excessive swarming during the last 2 weeks of May. Unfavorable weather for fruit blooms and an early cutting of clover were responsible for a low nectar yield. A dry, cool August and a cooler September is expected to contribute to a poor honey crop for 1967 in Ohio. The 1967 season was slightly below average in most parts of KANSAS as late freezes in April killed most of the pollen blossoms. These late freezes plus one of the wettest summers on record caused a slow honey bee buildup and a slow nectar flow at any one time during the season. Some 45,000 hives produced about 50 pounds each or nearly 2,250 pounds in total honey. Low prices for honey continued, but beeswax prices increased steadily all season which is a new trend not observed for several decades. The State Beekeepers Association established a pollination committee to broaden the use and efficiency of the industry in Kansas. During 1967 a total of 5,043 hives were inspected for disease and 60 colonies were treated or destroyed because of American Foulbrood. Several apiaries were infested with nosema disease in northeast and north-central areas although this condition had not been observed for several years. A LEAFCUTTING BEE (*Megachile rotundata*) emerged in Walla Walla County, WASHINGTON, and was moderate by June 9, about 2 weeks later than in 1966.

AN ICHNEUMON WASP (*Bathyplectes curculionis*) was more abundant than normal, especially in some northwestern counties of NEVADA, and adults were easily swept from an alfalfa field in Texas County, MISSOURI, in mid-May. Texas and Phelps Counties were 2 new county records in 1967. *B. curculionis* and another ICHNEUMON WASP (*Centeterus* sp.) were collected from alfalfa weevil in ILLINOIS. One *B. anura* release and 5 releases of BRACONIDS, 3 of *Microctonus* spp. and 2 of *M. aethiops* were made for alfalfa weevil. Another BRACONID (*Trioxys utilis*) was recovered in ARKANSAS after being released 10 years ago to control spotted alfalfa aphid. *Lysiphlebus testaceipes* was the important aphid parasite on cole crops, cotton, and grain in ALABAMA. *Aphidius* sp. controlled pea aphid in all but a few areas of Lyon County, NEVADA. A EULOPHID WASP (*Aphelinus flaviventris*) female swept from weeds at Hialeah, Dade County, FLORIDA, April 3, 1967, was a new North American record. This wasp is a parasite of an APHID (Hyalopterus sp.) and is known in Europe and the Near East. Another EULOPHID WASP (Tetrastichus incertus) is now generally found wherever alfalfa weevil occurs in NEW YORK. This species apparently is not yet a factor in alfalfa weevil control. Thirteen releases of T. incertus were made for alfalfa weevil in ILLINOIS. T. sokolowskii was collected from diamondback moth for a new MISSOURI State record in 1967. A. semiflavus was reared from sweetclover aphid collected in Lancaster County, NEBRASKA, for a new State record. Other rearings were from this aphid in Saunders County and from spotted alfalfa aphid collected in Burt County. Saunders and Burt Counties were new county records.

A CYNIPID WASP (Pseudeucoila hookeri) was collected in FLORIDA for a new North American record. A CHALCID WASP (Trichogramma minutum) was one of the most important bollworm and tobacco budworm egg parasites on cotton in ALABAMA while CICADA KILLER (Sphecius speciosus) adults were again numerous in sandy areas of central MARYLAND. A BETHYLID WASP (Cephalonomia tarsalis) was reared from saw-toothed grain beetle infesting macaroni in Yakima County, WASHINGTON.

A PHYTOSEIID MITE (Typhlodromus occidentalis) controlled Tetranychus mcdanieli when at economic levels in apple orchards in San Juan County, NEW MEXICO, and showed potential in partially controlling phytophagus mites in pear areas under modified or minimum programs in OREGON. Another PHYTOSEIID MITE (Zetzellia mali) and a TYDEID MITE (Tydeus californicus) also showed promise of partially controlling phytophagus mites in pear areas of OREGON. A NEMATODE (Hexamermis arvalis) was collected from alfalfa weevil in ILLINOIS.

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